

THE ABSENCE OF NEGATIVE PHOTOTROPISM IN THE  
MEXICAN CHICKEN BUG, HAEMATOSIPHON INODORUS  
(DUGES)

(Hemiptera: Cimicidae)

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The nocturnal feeding habits of the common bedbug, *Cimex lectularius* Linn., and other species of the family Cimicidae are well known. In experiments with this species, the bugs were generally fed in darkness (Johnson, 1942) or in partial darkness. *C. lectularius* will move toward the dark when subjected to a bright light (Kassianoff, 1937). In contrast to this R. E. Ryckman (personal communication) has observed the feeding of *Haematosiphon inodorus* (Duges) on nestling barn owls in the presence of abundant light under field conditions. The owl nests were in cave-like holes ten to twelve feet down from the top of a 35 foot bank on the south side of the Santa Ana River near Norco, California. *H. inodorus* will feed on chickens in the laboratory in bright light. Because of these and other observations of the actions of this bug, it was decided to attempt to determine whether it does or does not exhibit a photonegative tropism.

One hundred *H. inodorus* adults were taken at random from the main colony and placed in a jar with a screw-type lid; the jar was 7 inches long and  $1\frac{3}{4}$  inches in diameter. One half of the length of the jar was painted black on the outside; the other end of the jar was left unpainted. The jar was placed on a light background under an inverted aquarium. Two 200-watt lights were placed approximately 12 inches from the middle of the jar just outside the aquarium. The aquarium served to reduce the radiation of heat between the light source and the jar containing the bugs, thereby tending to decrease any tropism to heat which the insects might show. A nearly light-proof room was used in which to conduct the experiment.

The bugs were concentrated in the painted area by tapping that end of the jar while it was held lower than the unpainted area. The jar was then quickly placed under the aquarium. For five minutes the lights were switched on simultaneously. Twelve bugs had moved into the unpainted area during the dark period. After five minutes of light, another dozen bugs joined this group. Occasionally one or two bugs would run into the darkened portion of the jar but would either run out again or be replaced by one or

two other bugs. After the lights had been on for ten minutes, the number in the unpainted area was approximately the same. No fear of the light seemed to be indicated. Copulation by several pairs took place. There was an unsuccessful attempt by some to climb the walls of the jar.

The experiment was repeated with the procedure reversed; the bugs were concentrated in the light end of the jar before the five minute period of darkness. When the lights went on, apparently only a very few had shifted to the painted end of the jar during the dark period. After five minutes of light, the bugs seemed to be grouped toward the end of the unpainted area away from the dark. A number again were seen copulating in the light. At the end of ten minutes of light, only a very few had moved into the painted, dark portion of the jar.

A similar experiment was set up involving one hundred *Cimex lectularius* adults. The bugs were concentrated in the dark end of the jar, and the experiment was conducted as before. At the end of the five minute dark period, five insects were seen in the clear area. At the end of the first five minute light period, there were still only five *Cimex* in the unpainted end of the jar. After ten minutes of light, this number had dropped to two. During the time the light was on, a few individuals were seen to come from the dark zone, go into the unpainted area, and then go back to the dark zone.

The *Cimex* were then concentrated in the unpainted area and quickly put under the aquarium. The lights were turned off for five minutes as before. When the lights were turned on after five minutes of darkness, the large majority of *Cimex* were still in the clear area. After five minutes of light, only nine bugs were still in the unpainted zone.

From these experiments, from the observations of Ryckman in the field, and from observations of the general lack of negative reaction of the insect to the light in the laboratory, *H. inodorus* appears to exhibit an absence of the negative phototropism seen in *Cimex lectularius*. In fact, *H. inodorus* may be said to show a slight positive phototropism.

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